Central Valley Regional Water Quality Control Board

Data and Information Needs for Managing Delta Water Quality

12 May 2016

Delta Independent Science Board Panel

Delta Water Quality Monitoring and Data Needs

Outline:

- Key Delta water quality issues
- Coordinated modeling
- Program-based monitoring

Nutrients

Agency goal: Determine whether nutrient objectives are needed to address issues of:

- Increased distribution and biomass of invasive aquatic plants
- Increased frequency and distribution of harmful algal blooms
- Decreased phytoplankton abundance and shift in species composition

Delta Nutrient Research Plan

- Developing white papers, knowledge gaps, and prioritization process
- Need: Fill knowledge gaps for nutrient forms, macrophytes, and harmful algal blooms
- Need: coordination of monitoring and data sharing
- Need: modeling
- Implementation of Nutrient Research Plan - 2017

Harmful Algal Blooms

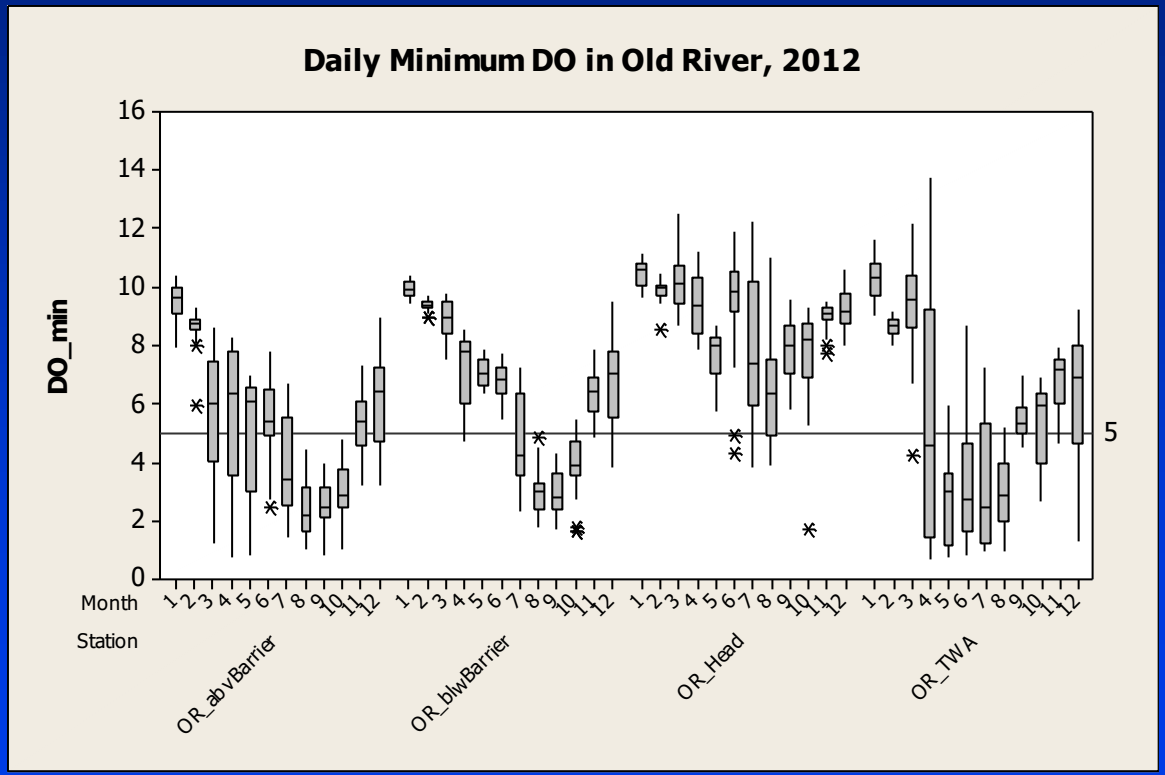
Agency goal: prediction & management

Needs:

- Regular surveillance for 3-5 years
- Bacteria & toxin concentration monitoring with multiple tools

Old & Middle Rivers: low DO

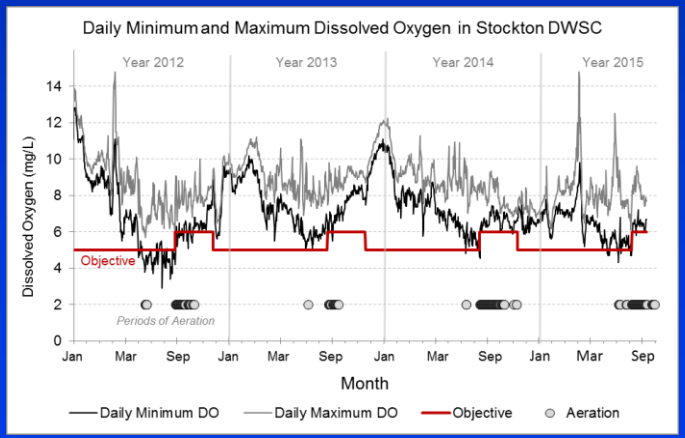
Agency goal: develop and implement TMDL to eliminate impairments



Stockton Deep Water Ship Channel
Low Dissolved Oxygen Control Program

Agency goal: continue implementation

- February 2015 Board Resolution:
  - Improved DO conditions
  - Continue control program
  - Support long-term agreement to operate aeration facility
- 2016: New aeration agreement



Mercury and Methylmercury

Agency goal: monitoring and data collection for review of Delta mercury TMDL

Phase 1 Methylmercury control studies underway

Data needs:

- Tidal wetlands & floodplain loads
- Ambient water/fish concentrations – *Regional Monitoring Program*
- Information to balance benefits

Pyrethroid Pesticides

Agency goal: establish control plan for pyrethroid discharges

Control plan is under development

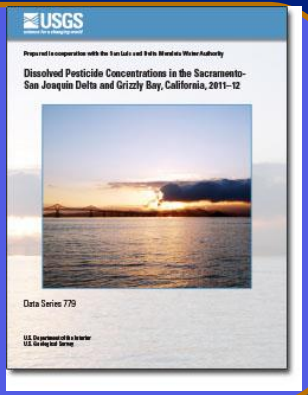
Phased approach is likely - including implementation, data collection, and review

Fungicides and Herbicides

New fungicides and herbicides being applied in Watershed

- Agricultural uses
- Urban landscapes
- No toxicity data on key phytoplankton species– diatoms etc.

New fungicides & Herbicides now being detected in USGS monitoring (Orlando et al., 2013)



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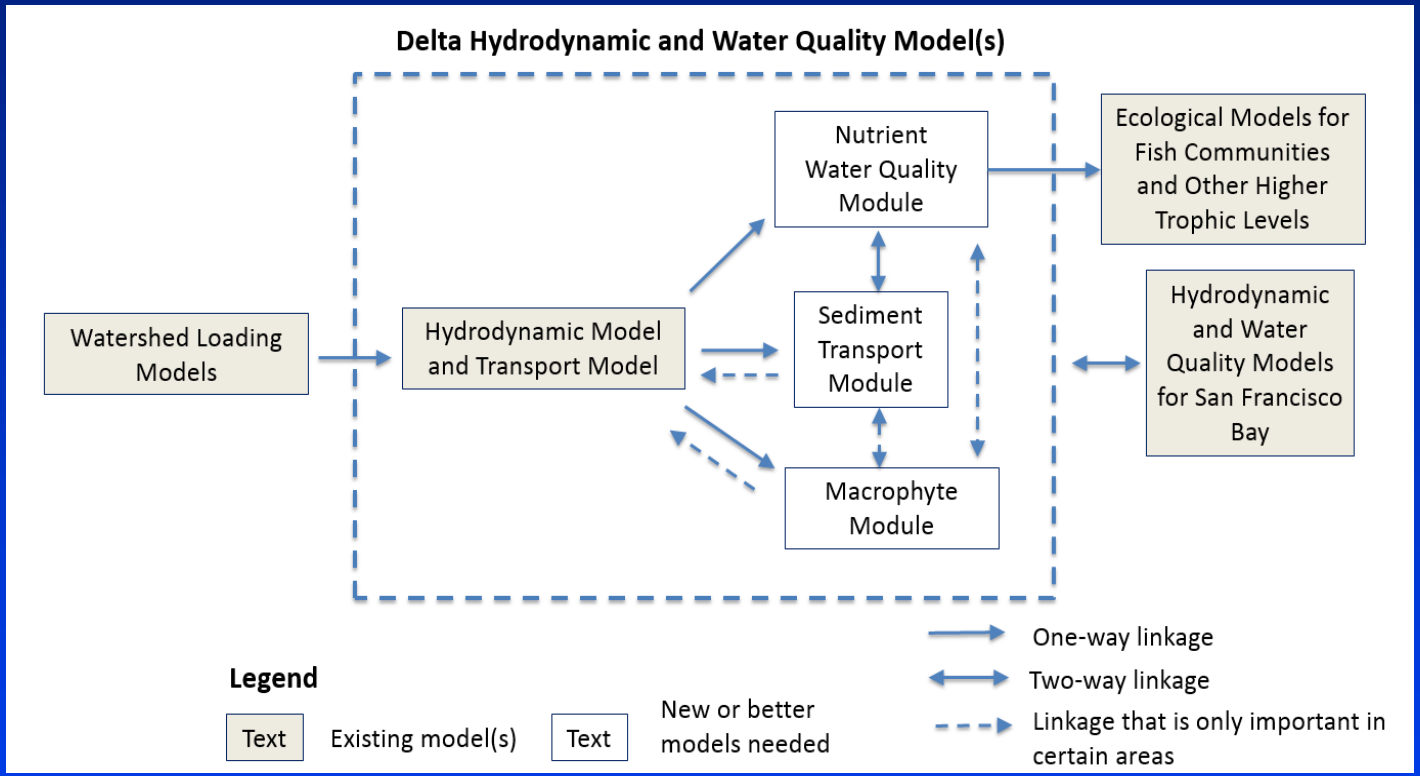
Agency goal: determine if these chemicals impacting are phytoplankton

Suppressed primary productivity in Northern Delta & shifts in plankton community

Wetland Restoration

- Agency Goal: coordinated monitoring
- Needs:
  - Monitoring and effectiveness of restoration
  - Data to support incentivizing creation

Water Quality Modeling



Trowbridge et al., 2016. Model Framework for Nutrient Management Questions in the Delta

Need: coordinated efforts

- There is already extensive monitoring conducted by many agencies in the Sacramento River Basin
  - ✓ Irrigated Lands Regulatory Program
  - ✓ NPDES wastewater and urban runoff
  - ✓ SWAMP
  - ✓ Municipal Water Quality Investigations (MWQI)
  - ✓ USGS
  - ✓ DWR & IEP

- **Need for more coordinated efforts to consolidate and assess water quality information**

Delta Regional Monitoring Program

- Delta Strategic Plans
- Sampling started in 2015
- Permit amendments
  - Reductions in individual monitoring ⟶ funding
- Monitoring design
  - Pathogens, nutrients, pesticides, toxicity, mercury

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